AMENDMENTS TO THE CLAIMS

1. (Currently amended) ~~A probe for analyzing protein-protein interaction between two proteins, wherein the probe consists of~~ A set of probes for analyzing protein A - protein B interaction, which comprises:

~~probe a, which comprises a N-terminal polypeptide of an intein a N-terminal polypeptide of a labeled protein~~ probe "a" comprising an N-half of an intein polypeptide and an N-half of an indicator protein, wherein the N-half of the indicator protein is connected at the N-terminal end of the N-half of the intein polypeptide, and the C-terminal end of the N-half of the intein polypeptide is a site for connecting protein A; and

~~probe b, which comprises a C-terminal polypeptide of an intein and a C-terminal polypeptide of a labeled protein,~~ probe "b" comprising a C-half of the intein polypeptide and a C-half of the indicator protein, wherein the C-half of the indicator protein is connected at the C-terminal end of the C-half of the intein polypeptide, and the N-terminal end of the C-half of the intein polypeptide is a site for connecting protein B.

~~wherein the N-terminal polypeptide of the intein is selected from the group consisting of a N-terminal splicing domain, (1-184 amino acids) of Sce VMA intein and a N-terminal Ssp DnaE intein, and the C-terminal polypeptide of the intein is selected from the group consisting of a C-terminal splicing domain, (389-454 amino acids) of Sce VMA intein and a C-terminal Ssp DnaE intein.~~

2. (Cancelled)

3. (Currently amended) The ~~probe for protein-protein~~ set of probes for analyzing protein A - protein B interaction ~~analysis~~ of claim 1, wherein the C-terminal of probe ~~a~~ "a" and the N-terminal of probe ~~b~~ "b" each contain a linker sequence.

4-5. (Cancelled)

6. (Currently amended) ~~The probe for protein-protein interaction analysis~~ The set of probes for analyzing protein A - protein B interaction of claim 1, wherein the ~~labeled~~ indicator protein is a fluorescent protein.

7. (Currently amended) ~~The probe for protein-protein interaction analysis~~ The set of probes for analyzing protein A - protein B interaction of claim 6, wherein the fluorescent protein is a green fluorescent protein.

8. (Currently amended) ~~The probe for protein-protein interaction analysis~~ The set of probes for analyzing protein A - protein B interaction of claim 1, wherein the ~~labeled~~ indicator protein is a luminescent enzyme.

9. (Currently amended) ~~The probe for protein-protein interaction analysis~~ The set of probes for analyzing protein A - protein B interaction of claim 8, wherein the luminescent enzyme is a luciferase.

10. (Currently amended) A method for analyzing ~~protein-protein interaction comprising~~ protein A - protein B interaction by using the set of probes of claim 1, which comprises:

~~contacting the probe of claim 1 with proteins for which protein-protein interaction is to be analzyed, such that probe a is linked to a protein and probe b is linked to a protein and the proteins linked to probe a and probe b coexist in a system; and~~

connecting protein A with probe "a", and connecting protein B with probe "b";

introducing probe "a" and probe "b" in a system; and

detecting the interaction of protein A with protein B by measuring a change ~~in fluorescence intensity resulting from protein-protein interaction between the proteins linked to probe a and probe b~~ of a signal from the indicator protein that is a fusion protein consisting of the N-terminal half of the indicator protein and the C-terminal half of the indicator protein.

11. (Cancelled)

12. (New) A vector expressing a set of probes for analyzing protein A - protein B interaction, which co-expresses probe "a" comprising a fusion polypeptide of an N-half of an intein polypeptide and an N-half of an indicator protein, and probe "b" comprising a fusion polypeptide of a C-half of the intein polypeptide and a C-half of the indicator protein, wherein the vector comprises:

a polynucleotide encoding the fusion polypeptide of probe "a", wherein the coding region for the N-half of the indicator protein is ligated at 5'-side of the coding region for the N-half of the intein polypeptide, and a 3'-side of the coding region for the N-half of intein polypeptide is a cloning site for ligating the polynucleotide encoding protein A; and

a polynucleotide encoding the fusion polypeptide of probe "b", wherein the coding region for the C-half of indicator protein is ligated at 3'-side of the coding region for the C-half of intein polypeptide, and a 5'-side of the coding region for the C-half of intein polypeptide is a cloning site for ligating the polynucleotide encoding protein B.

13. (New) A method for analyzing protein A - protein B interaction by using the expression vector of claim 12, which comprises:

ligating the polynucleotide encoding protein A and the polynucleotide encoding protein B into the expression vector;

introducing the vector into a eukaryotic cell and thereby expressing probe "a" connecting protein A and probe "b" connecting protein B in the eukaryotic cell, respectively; and

detecting the interaction of protein A with protein B by measuring a change of a signal from the indicator protein that is a fusion protein of the N-terminal half of the indicator protein and the C-terminal half of the indicator protein.